

Notice of Allowability

Application No.

08/418,286

Examiner

Leonard R. Leo

Applicant(s)

SCHWARTZ ET AL.

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Appeal Brief filed on December 20, 2005.
2. ☒ The allowed claim(s) is/are 23,24,26-28 and 32-42.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Erwin Schwartz on September 29, 2006.

The application has been amended as follows:

In the specification:

Page 11, line 19, insert "having a diameter greater than the thickness of said directional baffles 14" after "ends 34".

In the claims:

23. (Amended) A heat exchanger comprising:

a plurality of parallel-oriented plates ~~or heat transfer surfaces~~ securely fixed between two outer walls ~~or frames~~ to define between adjacent plates an area of sealed interleaved passages for two heat exchanging media fluids,

a plurality of channel ~~or duct~~ means for conducting a hot medium and a cold medium ~~respectively over said plates or heat transfer surfaces~~ such that a flow of hot and cold media medium takes place in an in-line and counter-flow fashion[;] , each of said channel means being defined by directional baffle means and an internal return bend means located between said adjacent plates, said internal return bend means being removably configured to allow direct access to said channel means at at least one end;

an external return bend means providing a transfer of the respective medium from one of said channel means layer to another of said channel means layer; said external return bend means being configured to provide a greater flow turbulence of the medium passing through each of said channel means, said external return bend means being incorporated into and extending outwardly from said outer walls;

~~each of said channel means being defined by a pair of said layers disposed one next to the other and by straight or directional baffle means and an internal return bend means located between said adjacent layers,~~

~~said internal return bend means having a configuration allowing direct access to said channel means at least at one end without the necessity to dismantle the entire heat exchanger unit;~~

~~wherein said outer walls or frames, said heat exchanger is forming a~~ and said plates are permanently fixed ~~structure~~ to provide a liquid-tight enclosure; and

~~wherein said external return bend means having a predetermined configuration adapted to provide a greater flow turbulence of the fluid passing through each of said channels, said external return bend means being incorporated into and extending outwardly from said outer walls;~~

~~wherein said heat exchanger further comprising two access doors which are~~ configured to be removably engaged in an air and liquid tight fashion to allow accessibility simultaneously from said at least one end ~~two opposite directions without dismantling the entire unit,~~ said doors being of substantially flat configuration; and

wherein said external return bend means are adjacent to said doors; and

wherein each of said directional baffle means is provided with rounded off ends having a diameter greater than the thickness of said directional baffle means in order to avoid snagging stringy material contained in said medium.

24. (Amended) Heat exchanger according to claim 23, wherein said internal return bend means ~~having a predetermined configuration adapted~~ is configured to provide a greater flow turbulence of the respective medium fluid passing through each of said channel means ~~channels~~.

25. Cancelled.

26. (Amended) Heat exchanger according to claim ~~23~~ 25, wherein said outer walls ~~or frames~~, said plates ~~or heat transfer surfaces~~, and said directional baffle means ~~and said internal return bend means~~ are fixed to each other by means of seal-welding.

27. (Amended) Heat exchanger according to claim 23, wherein said heat exchanger further comprising an inlet pipe means and an outlet pipe means provided for conducting of said hot and cold media fluids.

28. (Amended) Heat exchanger according to claim 27, wherein said inlet and outlet pipe means are located adjacent to the outer walls ~~or frames~~ to allow easy removal of said doors.

29. Cancelled.

Art Unit: 3753

30. (Previously presented) Heat exchanger according to claim 23, wherein said internal return bend means are permanently fixed at one end of said channel means and are removably attached on the opposite end of said channel means.

31. Cancelled.

32. (Previously presented) Heat exchanger according to claim 23, wherein said external return bend means having in cross-section a semi-hexagonal configuration.

33. (Previously presented) Heat exchanger according to claim 24, wherein said internal return bend means having in cross-section a semi-hexagonal configuration.

34. (Previously presented) Heat exchanger according to claim 24, wherein said internal return bend means having in cross-section a semi-octagonal configuration.

35. (Previously presented) Heat exchanger according to claim 24, wherein said internal return bend means having in cross-section a semi-circular corrugated-rib configuration.

36. (Previously presented) Heat exchanger according to claim 24, wherein said internal return bend means having in cross-section a semi-circular configuration.

Art Unit: 3753

37. (Previously presented) Heat exchanger according to claim 23, wherein said external return bend means having in cross-section a symmetrical step-like configuration.

38. (Amended) Heat exchanger according to claim 23, wherein ~~said directional baffle means are provided with~~ a plurality of [a] pressure relieve holes ~~recesses~~ are formed on said directional baffle means to allow a quick distribution of pressure in said channel means and to avoid a one-side pressure on said directional baffle means during blockage of said channel means.

39. (Previously presented) Heat exchanger according to claim 23, wherein said internal return bend means are permanently fixed to inner surfaces of said doors to provide easy cleaning of said heat exchanger.

40. (Amended) Heat exchanger according to claim 23, wherein said heat exchanger further comprising a transition means ~~adapted to connect~~ connected to said inlet and outlet pipe means ~~with said heat exchanger~~.

41. (Amended) Heat exchanger according to claim 23, wherein the plurality of said parallel-oriented plates ~~plate means~~ are oriented horizontally.

42. (Amended) Heat exchanger according to claim 23, wherein the plurality of said parallel-oriented plates ~~plate means~~ are oriented vertically.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3753

September 29, 2006